period. The Commission's Subscribership Report states that "the percentage of households subscribing to telephone service is 94.2 percent which is up 0.4 percent from November 1992, and it is the highest level ever reported."[34]

To ensure such high levels of subscribership can be maintained, the means by which the universal service goal is sustained must be changed. The current system is highly dependent upon implicit support, i.e., contribution from access services and intraLATA toll services. Increasing competition in high volume, low cost service areas comes at the expense of these support flows to low volume, high cost service areas. The price cap plan should ensure that the LECs have the ability to compete effectively so they can retain the needed access service contribution to universal service. The current price cap baskets and banding restrictions are counter to this because they limit the LECs' ability to undertake the necessary price changes and service introductions that keep them competitive. The LEC price cap plan should be revised to remove these restrictions and provide sufficient pricing flexibility required in a competitive environment.

The Commission asked whether and how it should revise the LEC price cap plan to ensure the universal availability of new services.[35] On several occasions, the Commission has already clearly and correctly articulated its policy relative to the introduction of new services and technologies by LECs. In the ONA proceedings, the Commission adopted four criteria for the introduction of services designed for enhanced service providers: technical feasibility;

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[34] Subscribership Report, p. 3.

[35] NPRM, para. 83.

economic feasibility; utility for ESPs; and market demand.[36] Thus, the Commission has determined that it cannot reasonably make service deployment decisions that would otherwise be made by the management of the enterprise.

This approach was tentatively affirmed in the Notice of Proposed Rulemaking in the Intelligent Networks proceeding.[37] In the Intelligent Networks NPRM, the Commission explicitly recognized that the benefits of new technology must be weighed against the costs. While the Commission recommended the manner in which Intelligent Network technology should be developed and deployed, it established tentative requirements only for those LECs who choose (on the basis of their own analysis and evaluation of the business decision) to deploy the technology in the first place. The Commission should retain its established policy that the cost of deploying new services and technologies represents an important criteria in the carrier's decision to make infrastructure investments.

Many new services are designed to respond to specific customer needs rather than ubiquitous expressions of demand. If the Commission were to now adopt some regime that "ensured" that all new services would be made universally available without properly addressing the issues of how to fund such ubiquitous deployment requirements, service providers may choose not to introduce a new service designed in response to targeted demand, due to the service provider's inability to recover its investment from ubiquitous deployment of such new service.

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[36] Amendment of Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry), Phase I Order, 104 FCC 2d 958 (1986) para. 217.

[37] Intelligent Networks, 8 FCC Rcd 6813 (1993) Notice of Proposed Rulemaking, paras. 17, 20 (Intelligent Networks NPRM).

Within the context of the public debate over the future of universal service, there is substantial agreement that the ongoing funding of a ubiquitously available telecommunications infrastructure is a serious problem. There is considerable debate over the amount of implicit support to sustain affordable basic service, over how to sustain the support as telecommunications markets become increasingly competitive over time, and over what should constitute universal service -- that is, what form of telecommunications access should receive support, if needed. While some policymakers may view a broadband information superhighway as the appropriate form of universal service for the future, no public agency has yet come to grips with how to balance the economics (cost and demand) of fiber to the home with ubiquitous deployment. For example, the Rural Electrification Association (REA) met with considerable resistance from state regulatory agencies, telecommunications providers (large and small) and others when it published rules that require states to file a plan for the development of a ubiquitous deployment of advanced technology.[38]

The search for suggested rules changes that would "ensure the universal availability of new services" is consistent with the Clinton Administration's inquiries into means of supporting the Information Superhighway. However, there is no public policy that says the public interest is best served by regulatory actions which would increase the cost of new services

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[38] Seventy-six parties filed comments with the Rural Electrification Administration in response to the State Telecommunications Modernization Plan (STMP) requirement of the Rural Electrification Loan Restructuring Act (RELRA) of 1993. All but two parties opposed the plan. For example, the Public Service Commission of Wisconsin stated, "This REA policy is not totally consistent with other potential national policies that foster competition and rely on market forces to provide telecommunications facilities." (Comments filed February 1994, p. 2). The North Carolina Public Staff Utilities Commission stated "that the services required by the rule and the technologies underlying them should be deployed only when customer demand or economic feasibility justifies such action." (Comments filed February 1994, p. 1.)

exponentially, without consideration of the demand for those services, nor how those parties making the investments might be able to recover them. There is no such policy because there is no way one could be justified.

From a competitive standpoint, requiring LECs subject to this proceeding to universally make available all new services, while allowing streamline-regulated carriers to selectively introduce new services, would result in the government choosing industry winners. The streamline-regulated carriers would be able to reap the economic benefits of introducing new services based on market demand, while the LECs would not. Clearly, this is not the Commission's intent. As Chairman Hundt stated at the April 12, 1994, Media Conference, "all should compete, negotiate, bargain, and invest to build the information highway."

Previous Commission policies have emphasized incentives for private investment to enhance the public interest. The price cap regime was built on such a principle. The Commission should reaffirm that policy with the revisions to the LEC price cap plan that encourage private investment.

2. LEC Earnings And Rates Have Been Within The Commission's Accepted Ranges, And Service Quality Has Remained High.

a. LEC Pricing Has Been Constrained. (Baseline Issue 2)

SWBT's pricing behavior has demonstrated that the greatest degree of competition is present in selected markets and for selected services and their close substitutes. Since the inception of price cap regulation and including SWBT's proposed 1994 annual access filing, the Special Access (Trunking) price cap index has declined approximately 8 percent. Over the same period, prices for SWBT's most competitive services have declined 16.1 percent, 13.3 percent and 14.8 percent for DS1, DS3 and Total Digital, respectively. In its 1994 Annual Access

Tariff Filing, SWBT proposes to price $7.5M below the cap in the trunking basket in response to competitive forces.

Also, SWBT has actively sought pricing flexibility commensurate with its competitors. For example, on September 16, 1993, SWBT filed a tariff requesting the ability to develop bids for services in response to customers who invite such bids. Customers are now more often using requests for proposals to weigh their competitive alternatives. SWBT customers that have competitive alternatives are demanding that SWBT be an effective competitor. Nevertheless, the Bureau rejected SWBT's filing on March 4, 1994.[39]

SWBT also filed a tariff on November 24, 1993, requesting the ability to make promotional discounts. This ability would permit SWBT to respond to discounts of its competitors. The Bureau rejected this filing on March 23, 1994.[40]

In addition, SWBT filed a tariff to allow it to charge a range of rates for its Megalink Data special access service on December 17, 1993. In this tariff, SWBT sought the ability to offer a customer Megalink Data service, at any price within a predetermined range of rates already on file with the Commission. This treatment would be exactly parallel to the pricing flexibility currently deemed appropriate for other common carriers operating in SWBT's service territory. The Bureau rejected this filing on April 15, 1994.[41] Rejection of these tariff

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[39] Southwestern Bell Telephone Company Revisions to Tariff F.C.C. No. 73, Transmittal No. 2297, Order, (DA 94-204) (Com. Car. Bur. 1994).

[40] Southwestern Bell Telephone Company Revisions to Tariff F.C.C. No. 73, Transmittal No. 2312, Order, (DA 94-259) (Com. Car. Bur. 1994).

[41] Southwestern Bell Telephone Company Revisions to Tariff F.C.C. No. 73, Transmittal No. 2316, Order, (DA 94-354) (Com. Car. Bur. 1994).

filings denies customers the benefits of competition and bestows unearned advantages to SWBT's competitors.

b. SWBT's Profit Levels Have Been In The "No Sharing" Zone For Two Of The Three Years. (Baseline Issue 3B)

In Baseline Issue 3b the Commission requests an evaluation of price cap LEC earnings performance. Specifically, the Commission asks whether the price cap LECs' profit levels are reasonable under the current LEC price cap plan in light of the price cap goal that higher profits are intended to be the reward for attaining increased efficiencies.

(1) SWBT's Earnings Performance Has Been Lower Under Price Cap Regulation.

The reported interstate earnings of the price cap LECs in general, and SWBT specifically, have certainly been within the range considered acceptable by the Commission. SWBT's earnings, as measured by the price cap earnings calculation used to determine sharing, averaged 11.79 percent over the 1991-93 period. This was actually 26 basis points below the interstate return SWBT earned over the 1987-90 time period. Moreover, SWBT's 1991-93 rate of return was 11.64 percent when restated to exclude interexchange services (as is required to place earnings on a comparable basis with carriers under ROR regulation and with SWBT's reported earnings before 1991.) As shown by the following Table 2, using comparable services, as shown in Column (B), SWBT's price cap earnings were 41 basis points below SWBT's recent experience under ROR regulation.

Table 2
SWBT Interstate Earnings
Price Cap Regulation vs. ROR Regulation[42]

Year(s)	SWBT Price Cap Earnings (A)	SWBT Interstate Access (B)
1985-86	---	12.74%
1987-88	---	12.40%
1989-90	---	11.69%
1991	10.75%	10.58%
1992	11.80%	11.94%
1993	12.81%	12.40%
1987-90 Average	---	12.05%
1991-93 Average	11.79%	11.64%

Thus, while price cap regulation was intended to provide a regulatory paradigm within which SWBT would have an opportunity to earn greater returns than under ROR regulation, in reality, such did not occur. While SWBT significantly reduced its input costs under price cap regulation, SWBT's prices to customers fell so much so as to leave SWBT in the "no sharing zone" for two of the three years.

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[42] SWBT data for 1985-86 are calculated from Form 492 Reports filed by state. 1987-88 results are from the revised Form 492 Report filed December 3, 1992. 1989-90 results are the Form 492 Report filed on March 31, 1992. 1991 results are from the Final Report filed March 31, 1993. 1992 and 1993 results are from the Form 492 Report filed March 31, 1994. Column B for 1991-93 is calculated.

(2) A Comparison With AT&T's Earnings Is Appropriate.

In comparison, AT&T earned an average of 13.35 percent during 1990-93 under a pure price cap plan.[43] Significantly, the Commission determined that AT&T's earnings were reasonable and made no adjustments to AT&T's 3.0 percent productivity offset or to its price cap indexes (based on earnings, productivity or interest rates).

A direct comparison of AT&T and LEC earnings is misleading, however, because AT&T's depreciation rates (used in its determination of AT&T's regulated interstate earnings) are significantly higher than LEC depreciation rates, as shown in Table 3 below.

Table 3
Composite Depreciation Rates

	AT&T[44]	SWBT
1991	**13.82%**	**7.05%**
1992	**10.30%**	**6.29%**

Restating SWBT's earnings for a comparable composite depreciation rate (using AT&T's 1992 rate of 10.3 percent) yields SWBT interstate earnings in the 6 percent to 7 percent range, as shown in Table 4.[45] These results show that AT&T actually experienced much stronger earnings growth than SWBT (and the other price cap LECs). AT&T was able to

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[43] Price Cap Performance Review for AT&T, Report, CC Docket No. 92-134, paras. 10, 20-22, Appendix B, Chart 4.

[44] Obtained from FCC Form M Reports, filed by AT&T.

[45] SWBT is not claiming that its depreciation rates should necessarily be the same as AT&T's, but valid comparisons of reported earnings require normalizing reported earnings for significantly different depreciation rates.

achieve higher reported earnings, while at the same time depreciating its assets at a much faster rate.

Table 4
Interstate Earnings: SWBT Compared to AT&T[46]

Year(s)	(A) AT&T	(B) SWBT Price Cap Earnings	(C) SWBT Interstate Access	(D) SWBT w/ AT&T's Capital Recovery	(E) Difference (D) - (A)
1990	13.73%	N/A	11.69%	---	---
1991	13.41%	10.75%	10.58%	7.09%	-6.32%
1992	12.77%	11.80%	11.94%	6.76%	-6.01%
1993	13.49%	12.81%	12.40%	7.62%	-5.87%
1991-93 Average	13.19%	11.79%	11.64%	7.19%	-6.00%

(3) Price Cap LEC Earnings Performance Has Not Justified The Sharing Backstop.

While there was some variance in earnings among the price cap LECs as might be expected (some of the LECs were in the sharing zone, others experienced reduced earnings and qualified for the low end adjustment, and yet others stayed in the no-sharing zone, experiencing neither sharing nor a low end adjustment), the extreme variation in earnings

[46] AT&T data for 1990, 1991 1992 and 1994 are from the Interstate Rate of Return Reports of AT&T Communications, filed with the FCC on April 1, 1991, March 31, 1992, March 31, 1993, March 31, 1994, respectively. SWBT data for 1990 are the results for the 1989/90 monitoring period from the Form 492 Reports filed with the FCC on March 31, 1992. 1991 results are from the Final Report filed March 31, 1993. 1992 and 1993 results are from the Form 492 Report filed March 31, 1994. Column D is calculated by restating SWBT's interstate price cap earnings, shown in column (B), using AT&T's 1992 composite depreciation rate of 10.3%.

behavior for which the sharing backstop safeguard was implemented did not happen. Variations in earnings, such as those experienced by the price cap LECs, are typical even in competitive markets and do not justify a sharing backstop safeguard.[47]

The price cap LEC earnings achieved during the review period are not inconsistent with earnings achieved under rate of return regulation. As Table 5 shows, the price cap LECs earned an average of 11.77 percent in 1991, and 12.33 percent in 1992, and 12.93 percent in 1993, compared to the 12.0 percent authorized rate of return for 1987-1990. SWBT earned 10.75 percent in 1991, 11.80 percent in 1992 and 12.81% in 1993, compared to achieved returns of 12.4 percent in 1987-1988 and 11.69 percent in 1989-1990.

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[47] The profit that an individual competitive firm actually earns depends both on its ability to make efficient investment decisions based on available information and on the actual realizations of costs, demands, and prices as market conditions change over time. At any instant, some firms will earn more than a competitive return, and others will earn less. An efficient competitive firm will expect on average to earn a normal return on its investments when they are made, and in the long run the average firm will earn a competitive rate of return. Thus, without any long term contracts, competition provides incentives for firms to make efficient investment decisions ex ante. The typical firm that makes efficient investment decisions will expect to earn a competitive return and, on average, it will. But at any point in time a specific firm, even if it has made investment decisions that were efficient ex ante, may be earning more or less than a competitive return as prices fluctuate with changing supply and demand conditions.

Paul R. Joskow and Richard Schmalensee, Incentive Regulation for Electric Utilities, 4 Yale J. on Reg. 11 (1986).

Thus, the earnings fluctuations experienced by the LECs under price cap regulation are consistent with a competitive outcome and should be expected by regulators to occur.

Table 5
Earnings Under Rate of Return Regulation
Versus Price Cap Regulation[48]

	Rate of Return		Price Caps		
	1987/88	1989/90	1991	1992	1993
Price Cap LEC Average	12.00%[49]	12.00%	11.77%	12.33%	12.93%
SWBT	12.40%	11.69%	10.75%	11.80%	12.81%

This analysis shows that the change to incentive regulation has not allowed the LECs to reap huge windfall earnings compared to what they were allowed to earn previously under rate of return; the LECs are not suddenly "running away" with skyrocketing earnings. Instead, the price cap LECs were able to achieve modest increases in rates of return, experienced earnings levels comparable to the recent rate of return regulation era, and achieved returns consistent with the Commission's view that "higher profits are intended to be the reward for attaining increased efficiencies."[50]More importantly, these calculated returns utilize accounting rules and depreciation rates that tend to understate economic costs and thus, overstate earnings.

In summary, price cap LEC regulation has not resulted in unreasonably high LEC earnings. In fact, these earnings precisely reflect that which was expected to happen with the

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[48] During the 1987-90 period the authorized rate of return was 12.0%. This, together with Part 65 Rules, meant that a tariff entity could earn up to 12.25% for overall interstate access services (excluding interexchange), and up to 12.40% for switched access, special access or common line individually.

[49] The 12.00% reflects the authorized rate of return for the 1987/88 and 1989/90 monitoring periods.

[50] NPRM, para. 46.

adoption of incentive regulation: a modest increase in overall earnings with individual LECs performing slightly better or poorer than the price cap LEC average. The earnings reported using the Commission's accounting rules and prescribed depreciation rates do not support an increase in the productivity offset. If the Commission were to adopt a higher productivity offset as a result of the very modest accounting earnings increase experienced by the price cap LECs, such a recapture of past earnings would be unwarranted and would significantly dilute the efficiency incentives that lie at the core of incentive regulation.

c. Service Quality Has Remained High.

Over the first three years of LEC price cap regulation, service quality and network reliability remained high. The NPRM acknowledges that there has been no LEC service quality degradation under price caps. However, price cap regulation is not the reason why service quality remained high, nor is it the reason for a continually high level of network reliability. Rather, for SWBT, a high level of service quality has been historically provided because it is a critically sound business decision to do so. Competitive pressures, as well as increasingly high expectations from customers, have resulted in the continued high levels of service quality and network reliability.

Since LEC price cap regulation began, SWBT has consistently met 99 percent of its local installation commitments. SWBT has improved its provisioning of access services in two ways. First, SWBT created service assurance warranties covering the installation and repair of most interstate special access services. These service assurance warranties guarantee SWBT's performance on installation and repair with penalties if commitments are not met. Second, SWBT was one of the first local exchange carriers to implement a "customer desired due date"

process for installation intervals on some services, replacing company-established intervals with the customer's requested date for service, no matter what the date.

B. Benefits From The Current LEC Price Cap Plan Are Limited And Basic Changes Are Needed Quickly.

The price cap restrictions imposed on the LECs, but not on AT&T, make it exceedingly difficult for the LECs to compete with other providers. The restrictions also have limited the benefits to the national economy that would have been possible under a pure price cap system, such as AT&T's plan. The following discussion explains the difficulties currently faced by SWBT:

1. The AT&T Plan Better Maximizes Economic Incentives Than The LEC Plan. (Baseline Issue 7B)

The LEC plan should be changed to mirror the incentives for efficiency and to include similar pricing flexibility to that which is incorporated in the AT&T price cap plan. The AT&T plan never had any ties to cost-plus ROR regulation. It has no earnings sharing. These elements never were appropriate for the LEC plan and should not be maintained. Appendix PLANS contains several charts comparing the LEC and AT&T price cap plans. These charts illustrate two points: (1) The AT&T plan has become much simpler; and (2) the LEC plan, which was more complex at implementation has become even more complex and restrictive.

In the LEC plan, some of the tightest pricing regulation is applied to the LECs' most competitive services. DS1 and DS3 service prices are each simultaneously subject to separate pricing bands, a high capacity services pricing band, and a trunking price cap index. By comparison, AT&T's most competitive services were afforded significantly greater pricing flexibility relative to AT&T's less competitive services, even in 1989 at the inception of the

AT&T price cap plan. Thus, with respect to fundamental pricing flexibility concepts, the LEC plan was implemented without recognizing that competition lessens the need for pricing regulation.

The regulatory treatment of new services under the AT&T plan is much less restrictive than under the LEC plan. AT&T has the ability to offer customized responses to individual customer demands, while, in general, the LEC plan has prohibited such treatment. AT&T has been able to justify new service prices using a Net Revenue Test, while the Commission eliminated the Net Revenue Test requirement in the LEC plan.[51] Instead, over the past three years, the Commission required that the price cap LECs use one or more of the following various new service pricing justifications:[52]

- Traditional cost showings[53]
- Flexible cost-based showings[54]
- Overhead allocation tests[55]
- Opportunity of justifying a risk premium[56]

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[51] Amendment of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for ONA, 7 FCC Rcd 5235 (1992) Memorandum Opinion and Order on Second Further Reconsideration, paras. 1, 12 [revising Part 61.49, eliminating the net revenue test].

[52] Some of these have been provided as options, in addition to the required justification.

[53] Policy and Rules Concerning Rates for Dominant Carriers, 6 FCC Rcd 2637 (1991) Order on Reconsideration, para. 128 [revising Part 61.49(g)(2)] (LEC Price Cap Reconsideration Order).

[54] Amendment of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for ONA, 6 FCC Rcd 4524 (1991) Report and Order and Order and Order on Further Reconsideration and Supplemental Notice of Proposed Rulemaking, (ONA/Price Cap Recon.), paras. 38-44, see also Appendix C [revising Part 61.49 and adding Part 61.49(L)].

[55] LEC Price Cap Reconsideration Order, Id., fn. 176; ONA/Price Cap Recon., para. 44.

[56] Id., para. 43.

- Technology-based cost models[57]
- Comparisons of ARMIS data between price cap LECs[58]
- Specific Commission pricing objectives[59]

The Commission has provided anything but a stable expectation as to how the reasonableness of a proposed new service price will be evaluated. As a result, under the current LEC price cap regulatory paradigm, it is very difficult and highly risky for a LEC to attempt to anticipate how and at what price level a proposed new service will be approved. Moreover, the Commission has continued to require waivers for (and sometimes has prohibited) new services that do not fit into the access charge structure developed prior to Divestiture.[60] Basic changes that are needed quickly to maximize the benefits from price cap regulation are listed in the following subsection.

2. The 3.3 Percent Productivity Offset Is An Ambitious Target And Should Be Decreased. (Baseline Issues 3A, 3C)

SWBT's recommendations regarding the productivity offset in the plan are explained in more detail in Appendix PROD. SWBT's fundamental recommendations are highlighted here.

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[57] Commission Requirements for Cost Support Material to be Filed With Open Network Architecture Access Tariffs, 6 FCC Rcd 5682 (1991), para. 3; ONA/Price Cap Recon., para. 42.

[58] LEC Price Cap Reconsideration Order, fn. 176.

[59] Southwestern Bell Telephone Company Revisions to Tariff F.C.C. No. 73, Order, DA 93-657, Transmittal Nos. 2260, 2279, 2280, 8 FCC Rcd 4589 (1993), paras. 34, 37-38. Provision of Access for 800 Service, 8 FCC Rcd 907 (1993) paras. 26, 34, 36. Policies and Rules Concerning Local Exchange Carrier Validation and Billing Information for Joint Use Calling Cards, 8 FCC Rcd 4478 (1993), paras. 22-24. Expanded Interconnection with Local Telephone Company Facilities, 7 FCC Rcd 7369 (1992), paras. 127-130, fn. 290; 8 FCC Rcd 7374 (1993), paras. 48-50. Southwestern Bell Telephone Company Revisions to Tariff FCC No. 68, Transmittal Nos. 2039, 2062, 2094, 6 FCC Rcd 4891 (1991), paras. 13-14, 16-18.

[60] See Section III.B.1., Rate Structure Reform, below.

a. There Is No Basis For Increasing The Productivity Offset.

The current productivity offset in the LEC price cap plan of 3.3 percent, if anything, overstates industry productivity achievements and should be reduced. It certainly should not be increased.

Currently, the price cap LECs must achieve the economy-wide productivity growth (as reflected in the GNP-PI and estimated at 0.9 percent)[61] plus the Commission's estimate of the telecommunications productivity differential of 2.8 percent, plus the Consumer Productivity Dividend (CPD) of 0.5 percent. Thus, the current price cap plan includes an annual telecommunications productivity growth of 3.7 percent, (0.9 percent plus 2.8 percent) and stretches this target by an additional 0.5 percent through the CPD, resulting in a total productivity target of 4.2 percent, which the LECs must achieve before they can retain the benefits of increased efficiency gains.

A recent telecommunications productivity study indicates that the productivity target of 4.2 percent embedded in the current plan is highly ambitious and significantly overstates the historical productivity gains achieved by the industry. This study, performed by Christensen Associates, represents an analysis of the Total Factor Productivity (TFP) of the price cap LECs over the 1984-92 period.[62] The study calculates average annual TFP growth of 2.6 percent (and a corresponding productivity differential of 1.7 percent), far lower than the productivity growth target of 4.2 percent included in the current LEC price cap plan.

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[61] Christensen Associates, "Productivity of the Local Operating Telephone Companies Subject To Price Cap Regulation," Attachment to USTA Comments, filed May 9, 1994, CC Docket No. 94-1, p. ii (Christensen Study).

[62] Christensen Study, p. i.

Third, the Commission tentatively proposed a 2 percent productivity offset as part of the benchmark for cable rates.[63] While the Commission tentatively concluded that cable operators should reasonably be expected to achieve productivity gains in the future analogous to those historically realized by other communications firms, the Commission is questioning whether cable productivity growth may differ. Considering the convergence of cable and telco technologies and markets, and the fact that cable operators and telephone companies, inevitably, soon will be major competitors for each others' services, there is no basis for concluding a significantly higher productivity growth threshold for telephone companies than for cable operators.

More significantly, the LEC productivity factor should be viewed in the context of the degree of regulation applicable to other market participants. Adopting a more ambitious price cap formula for one set of providers, the LECs, but not for their competitors, puts the LECs at a severe competitive disadvantage. With competition emerging in all aspects of the LECs' business, this asymmetric regulation already is a problem for the LECs today. For example, the AT&T productivity offset for price cap services is only 3 percent, while most of its competitive services are outside price cap regulation and have no productivity target. CAPs and private network providers also do not have any productivity target. Where competition exists, the Commission should treat the LECs in the same manner as other providers.

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[63] Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992: Rate Regulation and Adoption of a Uniform Accounting System for Provision of Regulated Cable Service, Report and Order and Further Notice of Proposed Rulemaking, MM Docket No. 93-215 and CS Docket No. 94-28, released March 30, 1994, para. 320. (Cable Regulation Order).

Finally, one of the most important factors affecting LEC productivity growth is the increased competition faced by LECs in all major business segments. In fact, the anticipation and onset of increasing competition, coupled with the marginally improved regulatory efficiency incentives of the current price cap plan, have already led the LECs to become more efficient in their operations. Rapidly evolving competition in the LECs' high-density, high-margin metropolitan markets will increasingly reduce the ability of the incumbent price cap LECs to achieve a given rate of productivity growth.

In order for incumbent price cap LECs not to experience a decline in productivity as a result of competitive entry, input costs would have to decrease at a pace at least equal to the pace by which output decreased. This would only be the case if LEC investments were completely fungible and could immediately be put to alternate use. Clearly, this is not the case in telecommunications because the provision of exchange access services is capital intensive, with a relatively high proportion of fixed costs. These fixed costs remain part of the LECs' input costs even after a substantial amount of revenue is lost to competition. Thus, the reductions in LEC output that result from competitive losses will likely be substantially greater than the accompanying cost reductions, leading to lower LEC productivity results. This, in turn, makes the current productivity offset a much more ambitious target for the LECs as competition intensifies in the coming years.

In short, there is no evidence that supports an increase in the productivity offset. To the contrary, there is evidence that the current productivity target is high, given historical productivity growth results and the expected effects of competition on LEC inputs and output.

b. The Productivity Offset Should Be Determined From Industry Results.

The appropriate productivity yardstick should be a sufficiently broad measure, such as an industry-wide productivity index, so that the productivity offset is not affected by individual actions or the performance of individual firms. While a firm may be more productive than the industry over some short time period, this is no indication that the firm will be able to sustain higher growth into the future. In fact, it typically becomes more difficult for an efficient provider to increase productivity growth because the firm is already deploying state-of-the-art technology and production processes, and incremental gains in productivity will be much harder to achieve. Conversely, a firm that has lagged industry productivity growth in the past will not necessarily continue to lag behind in the future, as it tries to catch up with the market and implements efficiency enhancing improvements.

In addition, use of an industry-wide productivity target emulates a competitive market outcome, which is a fundamental objective of regulation. The importance of this point was recognized in a 1990 Commission paper on price cap regulation:

> In a competitive market, the price of a good is not determined by the productivity of any one firm, but rather by the productivity of all the firms in the sector. If any one firm achieves a higher level of productivity, then that firm will be able to keep the gains of that greater efficiency. Conversely a firm whose productivity lags that of its competitors will experience below average profitability. Thus, in a competitive industry consumers experience price savings as a function of industry productivity, while firms reap rewards or suffer penalties as a function of their own ability relative to their competitors.[64]

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[64] An Introduction to the Economics of Price Cap Regulation, Common Carrier Bureau, Federal Communications Commission, January 31, 1990, p. 14.

Thus, an industry-wide productivity offset in the price cap formula emulates the productivity achievements of a competitive market and is the appropriate target that individual LECs should strive to meet and exceed.

c. The Productivity Offset Should Be Based On A Total Factor Productivity (TFP) Measure.

The productivity offset included in the price cap plan reflects the LECs' ability to produce services more efficiently, i.e., at a lower unit production cost, than the economy overall. Therefore, the productivity offset must reflect all sources of unit production cost reductions. In a recent study, National Economic Research Associates (NERA) mathematically shows that given the structure of the annual price cap adjustment formula, only total factor productivity can be used to set the productivity target.[65] The only approach that properly captures efficiency gains from all sources is full TFP index number computation. Therefore, the Commission should adopt standard index number computation as the primary approach in estimating TFP.[66]

d. The Productivity Target Should Reflect A Long-Term Trend Rate Of Growth.

The productivity offset included in the price cap formula represents the rate of change in productivity over time. Productivity data is volatile over time because: (1) telecommunications investments are typically "lumpy," leading to spurts in investment and

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[65] National Economic Research Associates, "Economic Performance of the LEC Price Cap Plan," Attachment to USTA Comments, filed May 9, 1994, CC Docket No. 94-1, p. 6-9, 18.

[66] The U.S. Department of Labor, Bureau of Labor Statistics (BLS) and other respected productivity analysts (for example, Christensen Associates) use a Törnqvist index computation. See, for example, BLS, "Trends in Multifactor Productivity, 1948-81," Bulletin, Vol. 2178, September 1983, p. 52.

productivity gains that are subject to large fluctuations over relatively short periods of time; (2) regulatory mandates on service quality standards or deployment schedules may result in periodic faster nondiscretionary investment than optimal absent the regulatory mandate; (3) short-term fluctuations in the national, regional, and local economies, and in the telecommunications industry, as well as unusual events such as natural disasters, are major sources of volatility in achieved productivity; and (4) productivity is procyclical because some factors of production, such as capital and skilled labor, are not fully variable. Such short-term effects are clearly not permanently sustainable and should not affect the productivity target selected for price cap regulation. To minimize these effects and arrive at the underlying long-term productivity growth experienced by the industry, the productivity measure must be smoothed over time. SWBT has consistently recommended that a period of at least eight years be used to determine a reliable productivity trend.[67]

e. The Commission Should Avoid The Pitfalls Of A "Recapture" Of Past Productivity Gains.

Incentives are diluted if the productivity offset is based on, or affected by, the recent past performance of the regulated firm. If the potential exists within the regulatory framework for increasing the productivity offset in response to short-term productivity gains, as raised for comment by the NPRM,[68] then the incentives to innovate, expand, and take on

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[67] SWBT Comments, CC Docket No. 87-313, filed October 19, 1987, pp. 42-43. SWBT Comments, CC Docket No. 87-313, filed July 26, 1988, p. 10.

[68] NPRM, para. 46.

additional risks will be substantially reduced or eliminated. An increase in efficiency is a primary goal of price cap regulation. LECs should not be penalized now or in the future because that goal has been achieved.

Furthermore, if the productivity target is reviewed frequently with the potential for revisions at the end of the review that are not based solely on changes in the underlying industry productivity trend rate of growth, then this revision process creates an erratic and unpredictable target which undermines price cap productivity incentives. A firm must have a reasonable degree of certainty that it will retain the benefits of increased efficiency beyond the industry norm if it is to take on the risks of new investments and restructuring. Frequent reviews severely limit the incentives for both investment and other efficiencies. A recently completed paper by Strategic Policy Research, Inc. (SPR) concludes that an appropriate length for the review period would be 8 to 10 years.[69]

f. A One-Time Rate Reduction Would Represent a Recapture of Past Productivity Gains And Is Not Justified.

The Commission has tentatively suggested "that there may be a good case for revising the 3.3 percent and 4.3 percent productivity factors, requiring a one-time reduction in rates, or both"[70] and asked comment on whether a one-time change in the LECs' price cap index should be required. Neither of these alternatives is justified by LEC performance under price caps. A one-time rate reduction would have the same harmful effect on efficiency incentives as would an increase in the productivity offset. Effectively, such a reduction would

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[69] See Appendix SPR, at pp. 17-21. A more detailed discussion of this follows in II.B.2.g. This conclusion on length of review presumes the elimination of earnings sharing.

[70] NPRM, para. 45.

represent a recapture of past productivity gains. This would severely diminish the LECs' incentives and ability to undertake expensive and risky investments in technology and new product development and runs counter to the efficiency goal of incentive regulation. It could adversely affect service quality, hamper universal service objectives and seriously jeopardize LEC participation in the information superhighway. This issue should not be used to reimpose ROR regulation on the price cap LECs who are no longer subject to an ROR represcription proceeding. Furthermore, such an adjustment would be wholly inappropriate without a complete and extensive represcription proceeding that examines the full set of issues affecting the cost of capital for price cap LECs.

g. No Separate Adjustment Is Needed To Account For Input Cost Changes. (Baseline Issue 4A)

The Commission has requested comment on the need for a mechanism to adjust the plan for changes in interest rates.[71] Interest rates represent only one component of the prices of the inputs experienced by a LEC. Thus, the concern over interest rates is merely part of the broader question of whether input price changes are properly reflected in the price cap plan.

As the Commission states, the PCI is adjusted each year "based on a measure of inflation that embodies economy-wide productivity gains and price changes (the Gross National Product Price Index (GNP-PI))," [72] minus a productivity factor and adjustments for exogenous cost changes. Importantly, the GNP-PI does not measure U.S. input inflation, it measures U.S.

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[71] NPRM, para. 46.

[72] NPRM, para. 43.

output inflation.[73] Implicit in the PCI formula is an assumption about input price growth for the U.S. economy relative to that for the LEC industry. If long-run historical input price growth rates have not differed significantly, no accounting for differences is needed in the price cap plan.[74] Thus, the Commission's question can be answered by examining the historical relationship between U.S. and telecommunications input costs.

Studies examining U.S. and telecommunications input costs have shown that, over the long run, there is no significant difference in their growth rates.[75] While there may be differences over short periods of time, the differences offset each other so that in the long run the two series experience essentially identical growth. Therefore, an adjustment to the price cap formula for input cost growth differences (including changes in interest rates) is not appropriate.

h. Earnings Levels Do Not Provide An Appropriate Measure Of LEC Productivity.

The NPRM has tentatively assumed a strong correlation between annual productivity and earnings results, concluding that both have increased over the price cap period and "are likely to improve even more as the economy recovers and [the LECs] experience

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[73] NERA, p. 11.

[74] Also, to the extent that any differences have occurred in the past, the indirect study methods utilized by the Commission caused historical average differences to be included in the productivity target. The Frentrup/Uretsky and the Spavins/Lande studies by their design incorporated the average extent to which input price trends were different. Any further adjustments would not be appropriate.

[75] For example, see Dr. Lauritis Christensen, Appendix F of AT&T's Comments in response to the FCC's Notice of Proposed Rulemaking in CC Docket No. 87-313, filed October 19, 1987, finding average input cost inflation of 4.5 percent for the Bell System and 4.6 percent for the total U.S. private domestic economy for the years 1948 through 1979. The recent NERA study concluded that for the period 1951-1987, input price growth for the U.S. approximates telecommunications input cost inflation, estimating 6.53% for the industry and 6.23% for the U.S. economy. NERA, pp. 14-15.

greater demand per line for calling."[76] As previously discussed, reported price cap LEC earnings using the Commission's prescribed accounting rules and depreciation prescriptions have increased slightly and have been consistent with levels experienced under rate of return regulation. For SWBT, interstate earnings generally have been lower under price cap regulation than under ROR regulation. There is no evidence to indicate that the underlying long-term productivity growth is increasing to any significant extent. In fact, there are strong reasons to believe that productivity trends could be reduced.

In addition, strong earnings results do not necessarily reflect strong productivity growth, nor do substantial productivity gains directly translate into strong achieved earnings. As described below, other factors beyond productivity have an impact on achieved earnings that may negate the conceptual relationship between productivity gains and earnings increases.

Although measures of productivity relate to operating results, they do not use accounting data directly. Productivity measures are not bound by accounting rules such as the valuation of assets at historical cost or the application of conventional regulatory depreciation rates. Instead, productivity measures are designed to reflect "physical" gains or losses, and outputs and inputs are measured in physical units or surrogates thereof. Earnings, on the other hand, reflect both physical (quantity) and monetary (price and financial) factors. As a result, earnings growth does not provide an appropriate indicator of total factor productivity growth.

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[76] NPRM, para. 44.